

Program

Wednesday, October 2, 9:00- 12:30

Introduction and Welcome – Wanninkhof

A. System Description of current systems-

All participants will provide descriptions of current systems operating in their laboratories prior to the workshop. System description of current systems will include issues such as standardization, estimates of precision, accuracy, response time of equilibrators, maintenance requirements.

This agenda item will focus on the commonality of the systems plus highlight some of the more novel ideas.

A1. Outline of generic components of current systems and operating principles (moderator, Wanninkhof)

- A1a Hardware- *Wanninkhof*
- A1b Software- *Castle*
- A1c Buoy based systems- *Friederich*
- A1d Data reporting and calculations- *Wanninkhof*

A2. Equilibrator design and performance issues (moderator, Sabine)

Participants will share their experiences with regards to response time, level of equilibration and intercomparison of systems

- A2a General overview of merits of different system designs (*Sabine*)
- A2b Large Equilibrators –*Cosca* (> 15 L volume)
- A2c Small Equilibrators- *Chipman* (< 3 L volume)
- A2d Lquicell Equilibrators- *Friederich, Hiscock*
- A2e Disc Equilibrators- *Sabine*

A3. Performance of analyzers (moderator, Chipman)

- A3a Performance of the different LI-CORs
- A3b Use of standards *Sullivan, Chipman*
- A3c Fitting of IR response curves *Chipman*
- A3d Known problems, their effect on accuracy and precision and remedies
- A3e Flushing of IR analyzers cells
- A3f Temperature control of analyzers (*McGillis*)

A4. Hardware and operation issues (moderator, Feely)

- A4a Drying methods, *Sabine*
- A4b Air line contamination- fact or fiction, *Wanninkhof*
- A4c Solenoid valve artifacts, *Chipman*
- A4d Failure and replacement frequency *Cosca*
- A4e Temperature and pressure measurements, *Neill*

A5. Software instrument control and data acquisition

Wednesday, October 2, 12:30- 13:45 – Lunch RSMAS Cafeteria

Wednesday, October 2, 13:45- 17:30

B. Performance measures

This section will focus on the theoretical and practical underpinnings of communal system design

B1. System intercomparison studies (*moderator, Millero*)

- B1a German intercomparison study, *Mintrop*
- B1b Japanese intercomparison study, *Wanninkhof?*
- B1c Ad hoc intercomparison by investigators, *Castle*

B2. System Requirements (*moderator, Feely*)

- B2a Required precision and unknowns (*Feely*)
- B2b Temperature control, luxury or necessity (*McGillis, Neill*)
- B2c What are known limitations, how can they be solved?
- B2d What is current duration of complete unattended attendance, how can this be increased?
- B2e Gas Standards (*Chipman, Cosca*)
- B2f Biofouling, how to deal with this (*Friedrich*)
- B2g Water flow and drainage issues (*Cosca*)
- B2h How to handle data (*Cosca*)

B3. Installation on VOS where, how? (*moderator, Wanninkhof*)

Wednesday, October 2, 18:00- Supper Bayside Hut(?)

Thursday, October 3, 9:00- 12:30

C. Concepts for the next generation of systems (*moderator Sweeney*)

This part of the meeting will focus on the design concepts of the new systems.

C1. Hardware and cost estimates

- C1a “low cost” autonomous system (*Friedrich*)
- C1b Middle of the road, workhorse system (*Wanninkhof*)
- C1c The system of the future (*Feely, Meinig*)

C2. Software

- C2a. Black box system- *Friedrich*
- C2b. Labview based system with expansion possibilities- *Neill & Castle*

C3. Auxiliary measurements, which should be included?

C4. Telemetry: How & How much data (*Meinig*)

C5. Data files and presentation- an uniform base reporting format.

Thursday, October 3, 12:30- 13:45 Lunch in RSMAS Cafeteria

Thursday, October 3, 13:45- 17:00

D. Follow-up international intercomparison exercises, and meetings (invitation of Dr. Nojiri) (*Sabine*)

E . Execution of implementation (focused on VOS operations)

The last part of the meeting will focus on options to build the systems.

- D1. How many system need to be build in the next 3-years?
- D2. Do we produce detailed plans for group to build their own systems?
- D3. Are there groups willing to build systems/parts of systems?
- D4. Are there contractors who will build systems/parts of system?
- D5. Any commercial interests?

E. Formulation of recommendations, discussion of report format (setting up of production team?)

Meeting Logistics

The meeting will be held at NOAA/AOML on Wednesday October 2 and Thursday October 3. The logistic coordinator will be Betty Huss (Betty.Huss@noaa.gov, 305-361-4395)

Confirmed attendees at this point are:

1. Frank Millero, RSMAS

2. Bill Hiscock, RSMAS
3. Denis Pierot, RSMAS
4. Chris Sabine, PMEL
5. Richard Feely, PMEL
6. Chris Meinig, PMEL
7. Cathy Cosca, PMEL
8. Colm Sweeney, Princeton U.
9. Wade McGillis, WHOI
10. David Chipman –offshore analytical
11. Craig Neill- CCN consulting
12. Gernot Friedrich, MBARI-
13. Rik Wanninkhof, AOML
14. Bob Castle, AOML
15. Kevin Sullivan, AOML
16. Esa Peltola, AOML
17. Nick Bates, BBSR
18. Dan Sadler, U. of Hawaii
19. Ludger Mintrop, Warnemunde
20. Geoff Morrison, Seakeepers Society
21. Rod Zika, RSMAS